Montana Comprehensive Assessment System (*MontCAS CRT*)

GRADE 8
COMMON RELEASED ITEMS
SPRING 2011

Montana
Office of Public Instruction
Denise Juneau, State Superintendent

opi.mt.gov

Reading Directions

This Reading test contains three test sessions. Mark or write your answers in the Answer Booklet. Use a pencil to mark or write your answers.

This test includes two types of questions: multiple-choice and constructed-response questions.

For the multiple-choice questions, you will be given four answer choices—A, B, C, and D. You are to choose the correct answer from the four choices. Each question has only one answer. After you have chosen the correct answer to a question, find the question number in your Answer Booklet and completely fill in the circle for the answer you chose. Be sure the question number in the Answer Booklet matches the question number in the Test Booklet. The example below shows how to completely fill in the circle.

CORRECT MARK	INCORRECT MARKS
●	○ ⊙ ◑ ⊘

If you decide to change your answer to a question, erase the wrong mark completely before filling in the circle of the new answer. Be sure you have only one answer marked for each question. **If two circles are bubbled in for the same question, that question will be scored as incorrect.**

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For the other types of questions in the Test Booklet, you will be asked to write your answers in the box provided. Read the question carefully. If a question asks you to explain your answer or to show your work, be sure to do so.

You may make notes or use highlighters in your Test Booklet, but you must bubble or write your final answers in your Answer Booklet. **Do not make any stray or unnecessary marks in your Answer Booklet.**

Let's work through a sample question together to be sure you understand the directions.
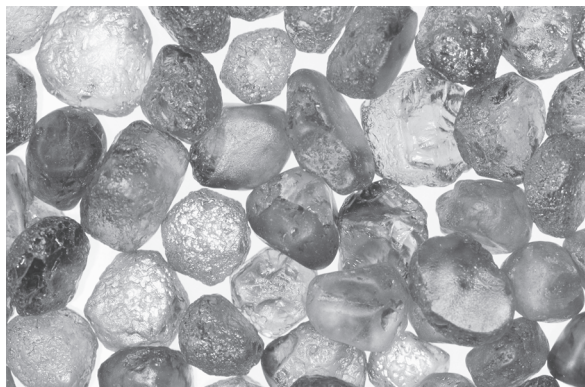

Sample Question

1. What is the capital of Montana?

   A. Browning
   B. Glendive
   C. Helena
   D. Missoula

Reading

Montana is known for its sapphire and agate gemstones. Read the article about these beautiful stones, and then answer the questions that follow.

Montana State Gemstones: Sapphire and Agate
from Montanakids.com

Sapphires

Montana sapphires and Montana agates have shared honors as the state's gemstones since 1969. Recognition was a long time in coming. A century earlier the small multi-colored sapphires angered early placer miners by clogging gold sluices* in such places as El Dorado Bar east of Helena. "Sapphire Collins" frequented the streets of Helena in the 1860s with a pocket full of pretty stones. Try as he might to convince local merchants and bankers of the stones' value, he was told bluntly that gold was of prime importance and that anything else was of little worth.

2   Eastern and European financiers weren't as <u>shortsighted</u> when they learned of Montana's sapphires in the early 1890s. Before long, substantial companies from as far away as London invested in sapphire mines throughout the state. On Quartz and Rock Creeks west of Philipsburg, or Brown's Gulch and Dry Cottonwood Creek east of Anaconda, or along the Missouri River at El Dorado Bar, French Bar, Magpie Gulch, Metropolitan Bar, and elsewhere, the rush was on. But the sapphire bonanza came in at Yogo Gulch in central Montana's Judith Basin Gulch.

Jake Hoover, friend of cowboy artist Charles Russell, made one of the earliest discoveries of Yogo sapphires. Looking for gold, he found the blue pebbles in the gravels of Yogo Creek in 1896. The Yogo mines attracted wide attention and capital. The U.S. Geological Survey termed the location "America's most important gem location." The British controlled the mines for nearly thirty years, explaining why the beautiful

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* sluices: long troughs into which water is directed, used to separate gold from gravel or sand
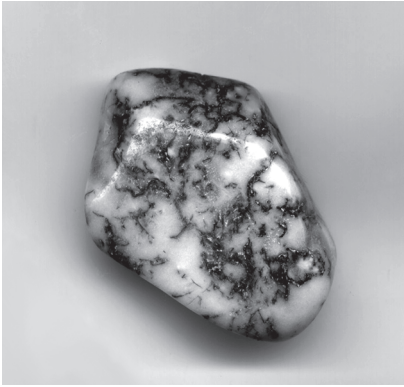
Montana agate

"Cornflower Blue" Yogos are found in the Royal Crown Jewel Collection in London. A unique quality of Yogo sapphires is that they retain their brilliance under artificial light. Sapphires from other parts of the world generally absorb artificial light, making them appear black and lusterless.

Over the years the Yogo mines have produced an estimated forty million dollars in the precious blue gems. The original Yogo mines are currently being worked by commercial companies. The largest cut Yogo is 10.2 carats and is in the Smithsonian Institution in Washington, D.C.

5   Montana's Council of Rock and Mineral Clubs supported not only the sapphire for gemstone honors, but advocated equal recognition for the exquisite and ever-varying Montana agate, found in abundance along the Yellowstone River to the east. Cut and polished, the agate is a beautiful addition to jewelry and a much-sought-after gem.

Between the sapphire and the agate, Montana's east and west, heritage and hobbies, are represented.

Special Acknowledgements to: Montana Historical Society, Rex C. Meyers and Norma B. Ashby.

1. In the first paragraph, the sentence "Recognition was a long time in coming" means that both gemstones were

   A. not always appreciated.
   B. recently discovered.
   C. easy to find.
   D. not very expensive.

2. The name "Sapphire Collins" is **most likely** in quotation marks to show that it is

   A. the name of a fictional character.
   B. not an important person.
   C. a historical figure.
   D. not the person's real name.

3. Based on the information in paragraph 2, a person who is <u>shortsighted</u> is one who

   A. does not think ahead.
   B. cannot sell a product.
   C. will not learn a skill.
   D. does not help others.

4. Which feature adds to the popularity of the Yogo sapphire?

   A. The Yogo sapphire is easy to find.
   B. The Yogo sapphire is similar to gold.
   C. The Yogo sapphire contains a variety of colors.
   D. The Yogo sapphire is unaffected by artificial light.

5. According to the article, the discovery of the Yogo sapphire was

   A. accidental.
   B. controversial.
   C. mysterious.
   D. unfortunate.

6. In the first sentence of paragraph 5, the words "not only" are used to introduce the idea that

   A. the sapphire was expensive.
   B. the agate was also recognized.
   C. the sapphire was discovered first.
   D. the agate was very popular.

7. Which source would **most likely** provide additional information about Montana gemstones?

   A. a book about Montana tourism
   B. an Internet article about Montana history
   C. a Web site maintained by Montana geologists
   D. an encyclopedia entry on Montana artists

Read the recipe for making yeast dough, and then answer the questions that follow.

Absolutely Basic Yeast Dough
Evelyn Raab

Yeast. Does the word send shivers down your spine? Do you freeze up when you imagine using such a thing? Relax. We'll start with something very simple. This dough is the basis for focaccia bread, pizza crust, and garlic breadsticks. It's fun to do, unbelievably easy, and everyone will think you're a genius. How can you lose?

1 cup (250 mL) warm (*not hot*) water
1 envelope (15 mL) active dry yeast
3½ cups (875 mL) white flour (*approximately*)
1 tbsp (15 mL) vegetable or olive oil
1 tsp (5 mL) salt

Pour the warm water into a large bowl, and sprinkle in the dry yeast. Give it a stir, then wait 5 minutes. The yeast, awakened from dormancy, comes to life! (AAAAGH!!!) It bubbles and goes all weird in the bowl. Or at least it should. If that doesn't happen, wait another 5 minutes. If *still* nothing happens, throw the mixture out and start over with a fresh package of yeast—the poor thing may have been too old.

2   Add 1 cup (250 mL) of the flour, the oil, and the salt to the yeast mixture, and stir until smooth. Add the rest of the flour, 1 cup (250 mL) at a time, until the dough becomes too stiff to stir easily. When this happens, sprinkle about ½ cup (125 mL) of flour out onto a board (or the table), turn the dough out of the bowl, and begin <u>kneading</u>. This is the fun part. Squash the dough down with the heel of your hand, while turning and folding, over and over and over again for about 10 minutes. If the dough sticks to the board, sprinkle it with a little more flour. How do you know when it's ready? Pinch the dough gently between your fingers—when it feels like your earlobe, it's done. It should be smooth, stretchy, and no longer sticky on the surface.

Place the dough in a large oiled bowl, turn it over so that all the surfaces are greased, and place the bowl on the top shelf of your oven. ***DO NOT TURN THE OVEN ON!*** Put a large pot of very hot water on the bottom of the oven, close the door, and let the dough rise in this warm, moist place for about 1½ hours, until almost double in volume.

Remove the dough from the oven, admire it for a minute, then make a fist and punch the dough right in the gizzard to deflate it. Turn it out of the bowl, knead it a few times, and set it aside while you prepare to *create something*.

See—that wasn't so hard, was it?

8. According to paragraph 2, when should the reader stop adding flour to the yeast mixture?

    A. when all of the flour is gone
    B. when the dough becomes smooth
    C. when the dough can no longer be easily stirred
    D. when the yeast and flour are no longer bubbling

9. In paragraph 2, what does the word kneading mean?

    A. rolling into fist-sized balls
    B. mixing by pressing or folding
    C. stretching or pinching into long pieces
    D. measuring small amounts of something

10. After which step must you wait for something to happen?

    A. after adding the flour to the dough
    B. after kneading the dough
    C. after greasing the surfaces of the dough
    D. after putting the dough into the oven

11. Which sentence is the **best** example of the author's use of persuasive language?

    A. "It's fun to do, unbelievably easy, and everyone will think you're a genius."
    B. "It bubbles and goes all weird in the bowl."
    C. "How do you know when it's ready?"
    D. "Turn it out of the bowl, knead it a few times, and set it aside while you prepare to *create something*."

12. How does the author show enthusiasm about this recipe?

    A. by providing helpful hints and suggestions
    B. by using humorous descriptions and informal language
    C. by comparing some ideas to familiar experiences
    D. by defining terms and explaining steps to take

13. Which additional feature would **most** help a reader who is new to cooking?

    A. a short biography of the author
    B. a bulleted list of related recipes
    C. a heading for each of the paragraphs
    D. a set of drawings of the kneading process

14. On a cooking Web site, which link would **most likely** lead to recipes that have this dough as a basis?

    A. "Meals from the Microwave"
    B. "More with Breads"
    C. "Our Favorite Foods"
    D. "Rice and Grains"

Read the passage about a boy and a deer, and then answer the questions that follow.

from *Tawny*
Chas Carner

> In this excerpt from the novel *Tawny* by Chas Carner, a boy named Trey has been caring for an injured deer named Tawny and preparing it to return to the wild.

IT WAS a cool and calm September morning. Wisps of mist hugged close to the ground and floated over the newly-shorn corn fields. It felt like autumn, Trey thought. Already, the leaves of the maples and oaks showed signs of turning from their somber green to vivid reds and oranges. In about one month, the farmers in the valley would have to worry about the killing morning frost. Winter would come early this year, he decided.

Tawny appeared excited and restless by the hints of colder times to come. She loped across the field and kicked high into the air. A fat ring-necked pheasant fluttered from the underbrush and glided to safety at the far edge of the field. It scurried into a stand of tall sumac that glowed a brilliant red in the morning light.

3 Trey stood beside the barbed-wire fence and watched the doe scamper merrily around and around. School starts in two days, he told himself. Enjoy these free moments while they last.

And then Tawny saw them. Way in the distance, moving cautiously through the mist, a stately buck and two does moved over the pasture toward the fruit-laden orchard on the other side of the farm. They had begun their migration into higher ground before hunting season and winter threatened them.

Tawny froze. She stood in the middle of the open field and watched them for a long time. Then, as if hypnotized, she walked toward the unnoticing deer. Slowly she moved, staring straight ahead.

6 "Tawny, no!" Trey yelled. He ran to her side, wrapped his arms around her neck and clutched at her collar. He dragged her back over the front lawn and led the doe into the barn. He saw his mother watching him from the living-room window.

She did not mention the incident to Trey when he returned to the house. They did not talk until after supper was long over and his father had headed off to bed.

8 "You couldn't let her go, could you?" his mother asked understandingly. Trey glanced up from his magazine and looked into her face. He wished that she had not witnessed his actions. He felt ashamed.

"No, ma'am," he answered and looked to the floor. "I love Tawny." He needed the doe. He feared being left alone.

"We all love her, Trey. She brought us something special when she arrived." And she would take that special something away with her when she left, the boy thought.

"I couldn't let her go. Not today. I'm not ready."

"But Tawny is ready, isn't she?" his mother asked.

"Yes."

"Do you feel sorry that you spent your summer teaching her to live in the wild?"

"Not really," Trey answered, but he knew he was lying. He regretted the day he first committed himself to setting Tawny free. "I just hoped that, maybe, she could live here with us and go to the woods whenever she wanted to," he admitted.

"Maybe she can. But we have to give Tawny the chance, don't we?" She was pushing him, Trey thought. But it wasn't that easy. Once Tawny left the farm, he might never see her again. Maybe she would forget him. He could not bear that.

"You don't understand," said Trey after a long pause. His mother crossed the living room and sat beside him on the couch.

18 "Oh, yes I do," she said in her you're-feeling-sorry-for-yourself-again voice. "Since the day you and Troy were born I've been preparing myself for the time when you grow old enough to live a life of your own."

"But I'm going to stay here and work the farm with Pa," Trey said.

"How do you know that? What if you go away to school and decide that you want to become a doctor or a businessman? Children grow up and leave home every day." But people have families, Trey thought. They visit each other and write letters and call on the phone at Christmastime.

"Your father and I have been preparing you—just as you have been preparing Tawny—for the day you leave your home. It's the same thing, you know," his mother continued. "And when that day comes, I'll set you free and tell you that I will always be here if you should ever need me. But I'll know that you are ready to face the world on your own."

"And when I set Tawny free, I'll know that she can make it on her own, too." I guess they are the same things, Trey thought. His fear of setting Tawny free was not a fear that she wouldn't survive. Rather, he feared that he could not go on by himself. Yet his mother had confidence in him. She believed that he would succeed.

"When someone truly loves another, he can't feel possessive, because that is a one-sided love that hurts the other."

"I'll never hurt you, Ma," Trey promised.

"I know you won't, Trey. But what about Tawny?"

He would set her free. Next week, as soon as school started.

15. What is the **main** purpose of the text box at the beginning of the passage?

    A. to identify the author of the passage
    B. to describe the setting of the passage
    C. to explain what has already occurred
    D. to reveal how the main character felt

16. In the first paragraph, the words "somber" and "vivid" are used to emphasize

    A. a contrast between seasons.
    B. a conflict between characters.
    C. a shift in the point of view.
    D. a memory of a past event.

17. Which phrase **best** describes how the tone changes in paragraphs 3 through 6?

    A. from hopeful to sad
    B. from lively to thoughtful
    C. from carefree to angry
    D. from peaceful to frantic

18. If Trey had not been in the field with Tawny, she **most likely** would have

    A. followed the other deer.
    B. discovered the way to the barn.
    C. gotten lost in the early winter snow.
    D. frightened away the intruding deer.

19. In paragraph 8, why does Trey feel ashamed?

    A. He knows he should have done what was best for Tawny.
    B. He waited too long to speak with his mother.
    C. He realizes he should never have cared for Tawny.
    D. He has been keeping a secret from his parents.

20. In paragraph 18, the hyphens are used to show that the voice Trey's mother uses is

    A. amusing.
    B. distant.
    C. familiar.
    D. loud.

21. What does Trey's mother realize about Trey?

    A. He will one day regret that he set Tawny free.
    B. He is taking care of Tawny because he feels he has to.
    C. He is attached to Tawny because he feels distant from his family.
    D. He will not be ready to let Tawny go until he understands why he should.

22. How does Trey feel at the end of the passage?

    A. He is worried that his plan will fail.
    B. He reluctantly accepts what he must do.
    C. He deeply regrets that he confided in his mother.
    D. He is satisfied that he acted correctly in the field.

23. Which words **best** describe Trey's mother in this passage?

    A. playful but impatient
    B. serious but enthusiastic
    C. sympathetic but firm
    D. teasing but sincere

24. This passage is **most** strongly related to which common theme in literature?

    A. seeking justice
    B. growing up
    C. finding a place in a group
    D. enjoying every minute of life

25. This passage is an example of which kind of writing?

    A. autobiography
    B. folktale
    C. personal essay
    D. realistic fiction

26. Which Web site would be **most** useful for finding more books by Chas Carner?

    A. www.writingtips.com
    B. www.childrenswriters.org
    C. www.writersworkshop.org
    D. www.historyofwriting.com

27. Describe the conflict that Trey faces and explain how he resolves it. Use information from the passage to support your answer.

Scoring Guide

Score	Description
4	Response provides a thorough explanation of the conflict that Trey faces and how he resolves it. Explanation includes specific, relevant information from the passage.
3	Response provides an explanation of the conflict that Trey faces and how he resolves it. Explanation includes information from the passage, but lacks specificity, relevance, and/or development.
2	Response provides a partial explanation of the conflict that Trey faces and/or how he resolves it. Explanation includes limited information from the passage and/or is partially correct.
1	Response makes a vague or minimal statement of the conflict that Trey faces and/or how he resolves it.
0	Response is totally incorrect or irrelevant.
Blank	No response.

Scoring Notes

Responses should reflect an understanding of the conflict Trey faces and how he resolves it: he wants to keep Tawny with him, but he knows that being free is what is best for her. He finally realizes that he does need to set her free.

- The conflict is apparent when Trey is talking with his mother after she witnesses him preventing Tawny from following wild deer, in spite of his commitment to releasing her.

- Trey's mother advises him that Tawny may decide on her own to stay, but it is Tawny's decision to make.

- Trey's mother shows that she understands what he is going through by comparing his conflict to that of being a parent: both must commit themselves to preparing something they love to leave them. Trey struggles with that explanation, as he thinks to himself that family members continue to visit each other and keep in touch.

- Trey realizes that he wants to keep Tawny because of his own need for her companionship, not because he fears she will not survive on her own.

Example of Score Point 4

Trey loves Tawny. Yet, there's a problem; Tawny is a doe, a wild doe, ready to be set free. Trey doesn't want Tawny to leave, even though he knows she can fend for himself. He's not worried that Tawny wont survive, he's worried that he could not go on by himself. His mother told him that "Children grow up and leave home every day." Trey truly wishes not to except that. He comes up with so many defenses and excuses to try and contradict that statement. But he knows he can't. He has a good, long talk with his mother after his father goes to bed; and eventually agrees, although rather reluctantly, to let Tawny go in a week. As soon as school starts. He knows, in his heart, that she'll be safe.

Example of Score Point 3

The conflict that Trey faces is that he has been training Tawny, the deer, all summer teaching her how to live in the wild, but when it comes time to set her free, he lets his own emotions hold him back from doing so. He lets his emotions of affection for her and for his own being of not knowing wether he could go on by himself, stop him from letting her leave. Trey resolves this conflict by talking to his mom and realizing his "selfish" actions. He decides it will be best to let her go the following week, when school starts.

Example of Score Point 2

Trey prepared a deer to leave home, and survive on it's own, but he feels as he cannot go on without the deer, His mother talks to him, and helps him understand that you have too let go and let the deer make the choice.

Example of Score Point 1

Trey doesn't want to set tawny free cause he loves tawny but after awhile he realizes it is the best thing to do!

Example of Score Point 0

Trey resolves the conflict by how he knews
what he did and every thing and knows he should
be better and go on.

Mathematics Directions

This Mathematics test contains three test sessions. Mark or write your answers in the Answer Booklet. Use a pencil to mark or write your answers.

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Let's work through a sample question together to be sure you understand the directions.

Sample Question

1. Montana is the **fourth** largest state. How many states are larger than Montana?

   A.   1
   B.   3
   C. 10
   D. 42

Mathematics (No Calculator)

1. What is $\frac{34}{40}$ expressed as a percent?

   A. 34%

   B. 40%

   C. 85%

   D. 94%

2. A cabinetmaker can construct between 25 and 30 cabinets a month. Which is the **best** estimate of the number of cabinets the cabinetmaker can construct in $6\frac{1}{2}$ months?

   A. 150

   B. 180

   C. 210

   D. 300

3. Jason drives 25 miles to work each day. His car has a 30-gallon gas tank and averages 19.2 miles per gallon. Jason filled the gas tank and then drove to work and home again. Which expression can be used to calculate how many gallons of gas **remain** in his car's tank?

   A. $2[30 - (19.2)(25)]$

   B. $30 - \dfrac{2(25)}{19.2}$

   C. $30 - (19.2)(25)(2)$

   D. $2\left(30 - \dfrac{25}{19.2}\right)$

4. Study the shape below.

5 cm
5 cm
8 cm
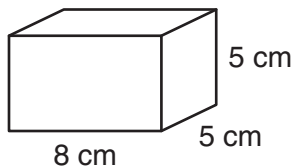
Which pattern (net) will fold into the shape?

A.

8 cm
5 cm
5 cm
5 cm
8 cm

B.

8 cm
5 cm
5 cm
5 cm
8 cm

C.

5 cm
5 cm 8 cm 8 cm 5 cm

D.

5 cm
5 cm
5 cm
5 cm
8 cm

5. Which list has the numbers in order from **least** to **greatest**?

A. $\frac{8}{3}$, 275%, $\frac{14}{5}$

B. $\frac{8}{3}$, $\frac{14}{5}$, 275%

C. $\frac{14}{5}$, $\frac{8}{3}$, 275%

D. 275%, $\frac{14}{5}$, $\frac{8}{3}$

6. The stem-and-leaf plot below shows the points scored by the members of a basketball team in their last game.

```
0 | 1 2 4 4
1 | 0 2 4 4 5
2 | 0 0 8
```

Key: 1|4 = 14 points

What is the median number of points scored in the game?

A. 12

B. 13

C. 19

D. 20

7. If $m < 0$, which statement is **always** true?

A. $m^2 < 0$

B. $m^2 > 1$

C. $m^2 < m$

D. $m^2 > m$

8. Write the prime factorization of 60.

9. Add.

$$-\frac{5}{6} + \frac{3}{4}$$

10. A pharmaceutical company manufactures capsules for certain medications. Which measurement would the company **most likely** use to measure the mass of the medication for each capsule?

   A. milligrams
   B. kilograms
   C. milliliters
   D. kiloliters

11. The table below shows the number of calories burned during different activities.

Calories Burned per Hour of Activity

Activity (1 hour)	130- pound person	155- pound person	190- pound person
Aerobics	354	422	518
Badminton	413	493	604
Bicycling <10mph	236	281	345
Bicycling >20mph	944	1126	1380
Bowling	177	211	259

Based on the table, which statement is true?

   A. Everyone burns calories at the same rate while doing any one activity.
   B. Bicycle speed does not change the number of calories burned.
   C. Playing badminton burns fewer calories than bowling.
   D. Doing aerobics burns about twice as many calories as bowling.

12. Which expression is equivalent to $xy + x(y + 1) + 2xy$?

    A. $2xy + 1$

    B. $4xy + 1$

    C. $4xy + x$

    D. $5xy$

13. An 8-ounce serving of yogurt contains 36% of the recommended daily amount of calcium. What percent of the recommended daily amount of calcium is in a 6-ounce container of the same yogurt?

    A. 27%

    B. 30%

    C. 34%

    D. 48%

14. A rotation of triangle ABC results in the image, triangle EDC, shown below.
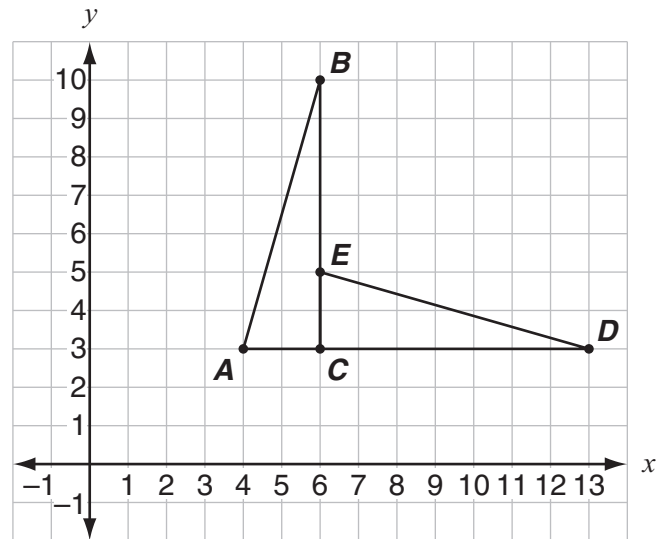
Which phrase describes this rotation?

    A. 90° clockwise about point C

    B. 90° clockwise about the origin

    C. 90° counterclockwise about point C

    D. 90° counterclockwise about the origin

15. The structure shown below is made of 13 cubes.
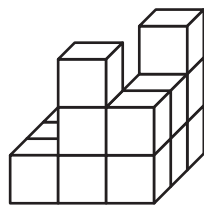
Front

What is the right side view of this structure?

A.

B.

C.

D.
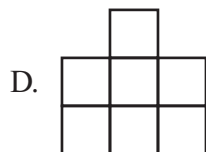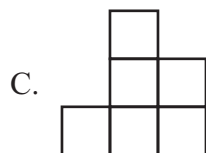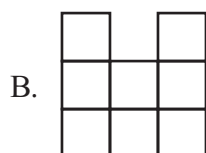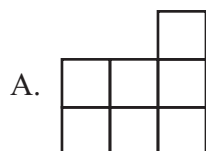
16. A cylindrical can is shown below.

6 cm

12 cm
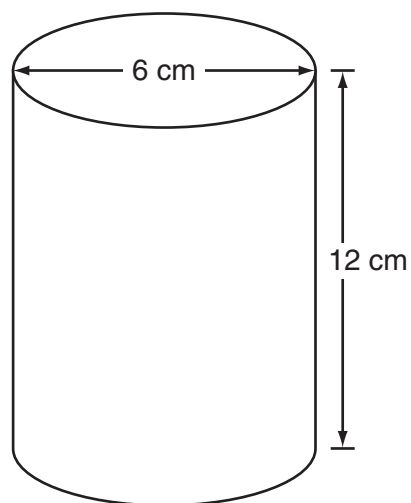
The can has no overlaps. How much material, to the nearest square centimeter, is needed to make this cylindrical can? (Note: Use 3.14 for π.)

A. 283 cm^2

B. 339 cm^2

C. 678 cm^2

D. 1356 cm^2

17. Study the pattern below.
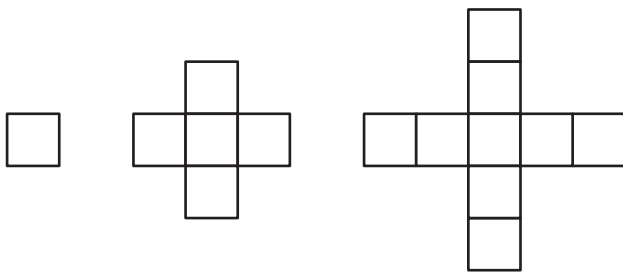
Figure 1   Figure 2   Figure 3

How many squares will be in Figure 50?

A. 53
B. 170
C. 197
D. 625

18. Lindsay is putting a 3-foot-wide path around the outside of her rectangular garden as shown below.
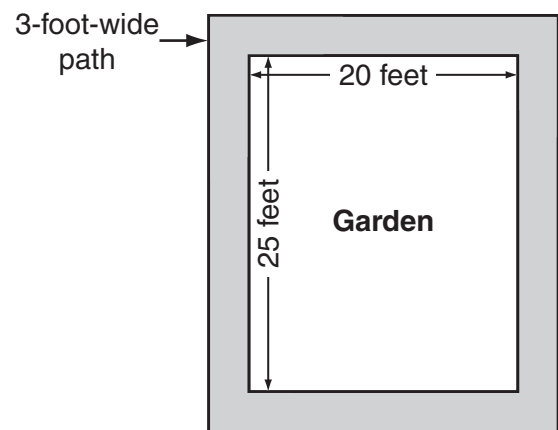
What is the area of the path around the garden?

A. 144 square feet
B. 270 square feet
C. 306 square feet
D. 342 square feet

19. Triangle *JKL* is reflected across the *x*-axis. The coordinates of point *J* are (3, 5). What are the coordinates of the image of point *J*?

A. $(-3, -5)$
B. $(-3, 5)$
C. $(3, -5)$
D. $(5, 3)$

20. Study the pattern below.

$$4, 13, 40, 121, 364, \ldots$$

What is the rule for finding the next number in this pattern?

A. Add 9 to the previous number.
B. Square the previous number, then subtract 3.
C. Multiply the previous number by 2, then add 5.
D. Multiply the previous number by 3, then add 1.

21. Mrs. Carson drives her son and 3 other children to school each morning. She has 4 available passenger seats in her car. In how many different arrangements can her son and the other children sit in Mrs. Carson's car?

A. 4
B. 6
C. 10
D. 24

22. A payroll clerk uses the following expression to calculate the total pay of an employee who worked 40 hours at the hourly rate of p and h hours of overtime.

$$40p + 1.5ph$$

What is the employee's total pay when p = $8 and h = 15?

A. $342.50
B. $441.50
C. $500.00
D. $612.00

23. Kevin will conduct a survey at his school to determine whether students would rather purchase a salad bar lunch than buy a hot lunch or bring a sack lunch. Which question should Kevin ask in his survey?

A. How many times a week do you purchase a hot lunch at school?
B. How many times a week do you bring a salad in your sack lunch?
C. How many times a week would you purchase a salad bar lunch if it were available?
D. How many times a week would you rather bring a sack lunch than buy a hot lunch at school?

24. You may use the coordinate grid below to answer this question.
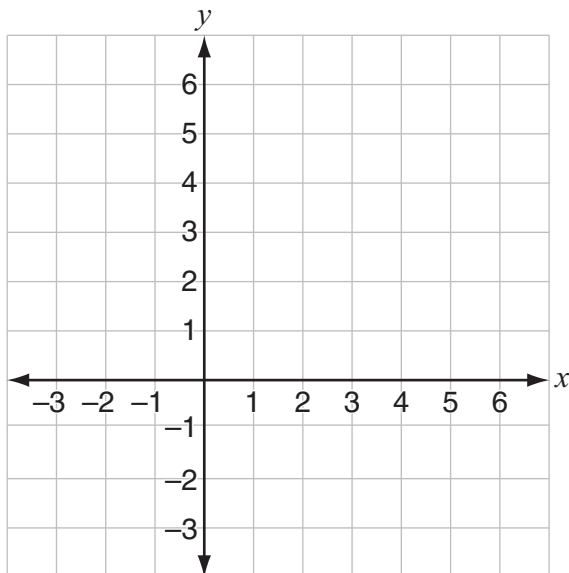
A circle with a center at (3, 2) and a radius of 3 is graphed. What are the coordinates of a point **on** the circle?
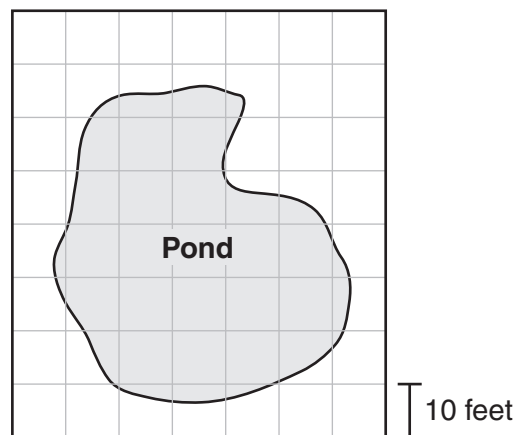
A. (–1, 0)

B. (2, 0)

C. (3, –1)

D. (5, 3)

25. Study the graph below.
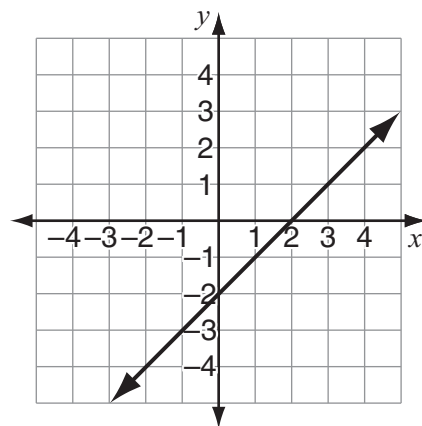
Which equation represents the graph?

A. $y = x - 2$

B. $y = x + 2$

C. $y = 2x - 2$

D. $y = -2x + 1$

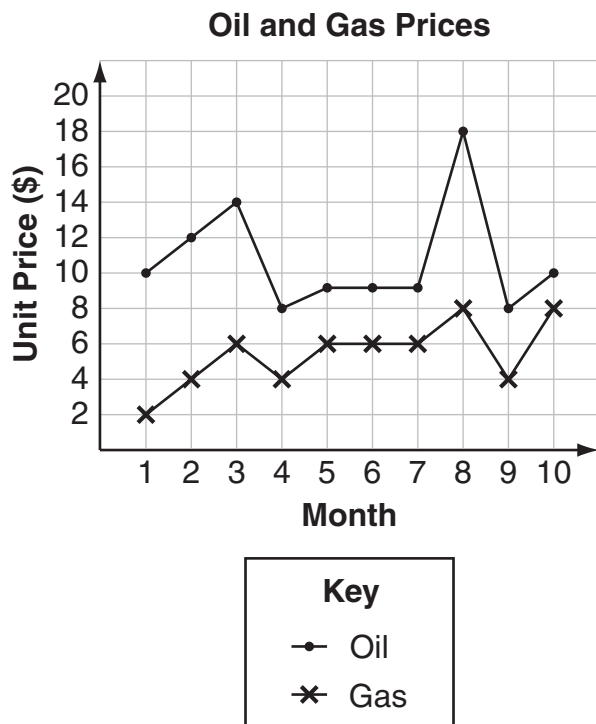26. A map of a pond is shown below.

10 feet

What is the approximate surface area, in square feet, of the pond?

A. 5600

B. 2500

C. 19

D. 15

27. The graph below shows the highest prices of a unit of oil and a unit of gas each month over a 10-month period.

Oil and Gas Prices

If the highest price of a unit of oil is greater than $10 in Month 11, which is the **best** prediction about the highest price of a unit of gas during that month?

A. The price will exceed $8.

B. The price will drop below $8.

C. The price will double.

D. The price will remain the same.

28. Just Nuts buys bulk nuts and puts them into smaller packages. How many 6-ounce packages can be made from a 12-pound bag of nuts?

A. 2

B. 16

C. 32

D. 72

29. Jeremy drove for three hours heading away from home, stopped for one hour, and then drove for another two hours in the same direction. Which graph **best** represents Jeremy's distance from home over time?

A.

B.

C.

D.
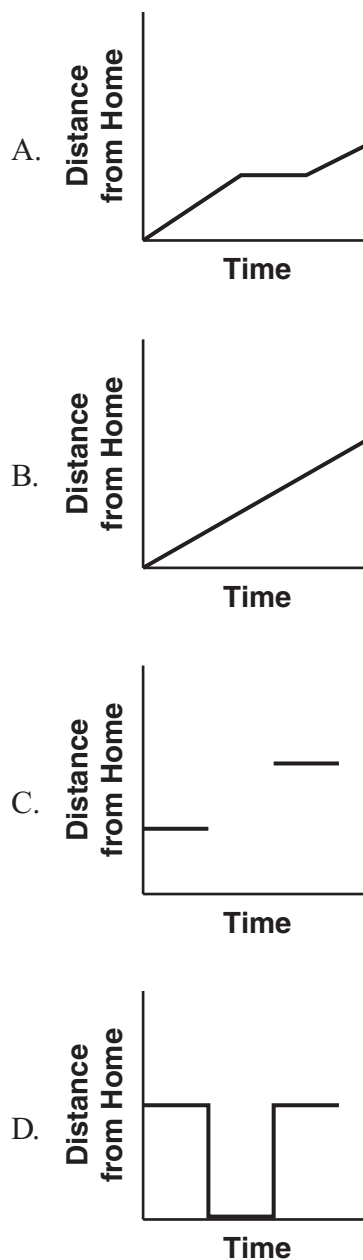
30. Triangle *PQR* is on the coordinate grid below.
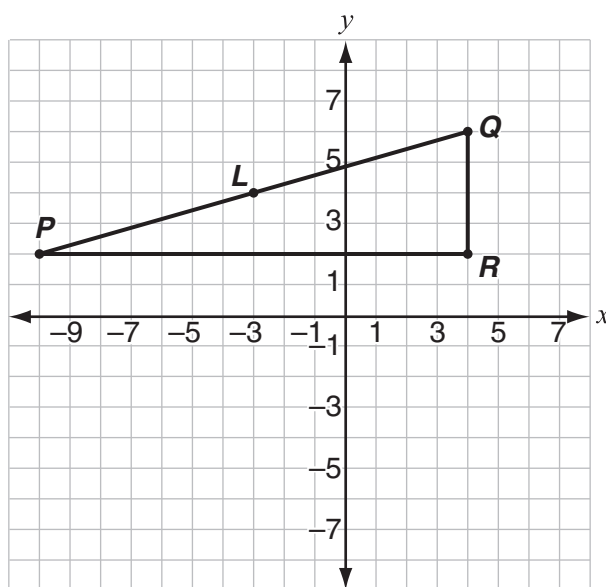
a. Copy the coordinate grid and triangle *PQR* onto the grid in your Answer Booklet. The midpoint of segment *PQ* is point *L*. What are the coordinates of point *L*?

b. On the grid, locate the midpoint of segment *QR* and label it point *M*.

c. On the grid, locate the midpoint of segment *PR* and label it point *S*.

d. What is the area of triangle *LMS*? Show or explain how you found your answer.

Scoring Guide

Score	Description
4	5 points
3	4 points
2	2 or 3 points; 2 only if there is a point in part d
1	1 or 2 points
0	Response is incorrect or contains some correct work that is irrelevant to the skill or concept that is being measured.
Blank	No response.

Scoring Notes

Part a.   1 point   for giving the correct coordinates of (–3, 4)

Part b.   1 point   for correctly locating point M

Part c.   1 point   for correctly locating point S
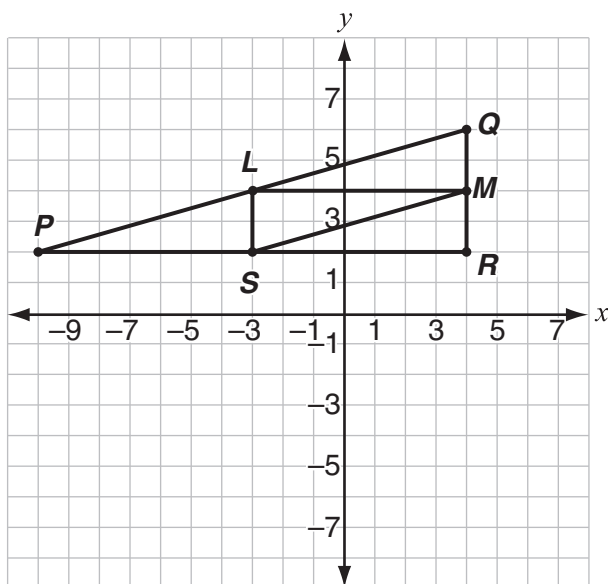
Part d.   2 points   for the correct answer, **7** (sq. units), or correct answer based on incorrect parts a – c and work or explanation

$$A = \frac{1}{2}bh$$

$$A = \frac{1}{2}(7)(2) = 7$$

Note: Students can count the base and height on the graph. Segment LM can be the base and the vertical distance from L to S can be the height.

OR   1 point   for the correct answer, but inadequate or no work or explanation

OR   1 point   for showing correct strategy in finding area of a triangle

a. $L = (-3, 4)$

b.
c.

D. $A = \dfrac{b \cdot h}{2}$

$b = 2 \quad h = 7 \qquad \dfrac{14}{2} = 7$

$A = 7$

Example of Score Point 4

Sample 2

A. $(^-3, 4)$

D. 7^2 BLOCKS $\rightarrow$

Height of LMS - 7 Blocks
Base of LMS - 2 Blocks
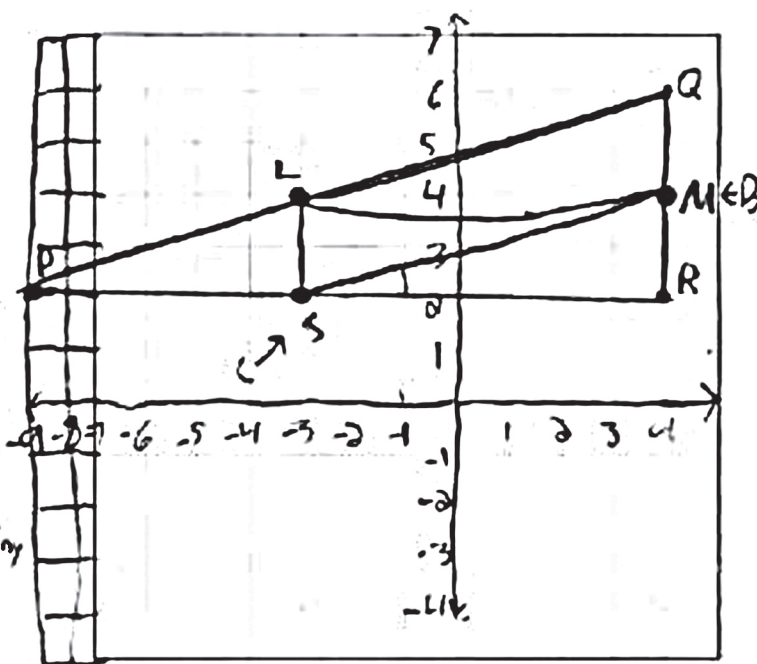
$(\frac{1}{2} \cdot 2) \cdot 7 = 7$

a. $(-3, 4)$

b.
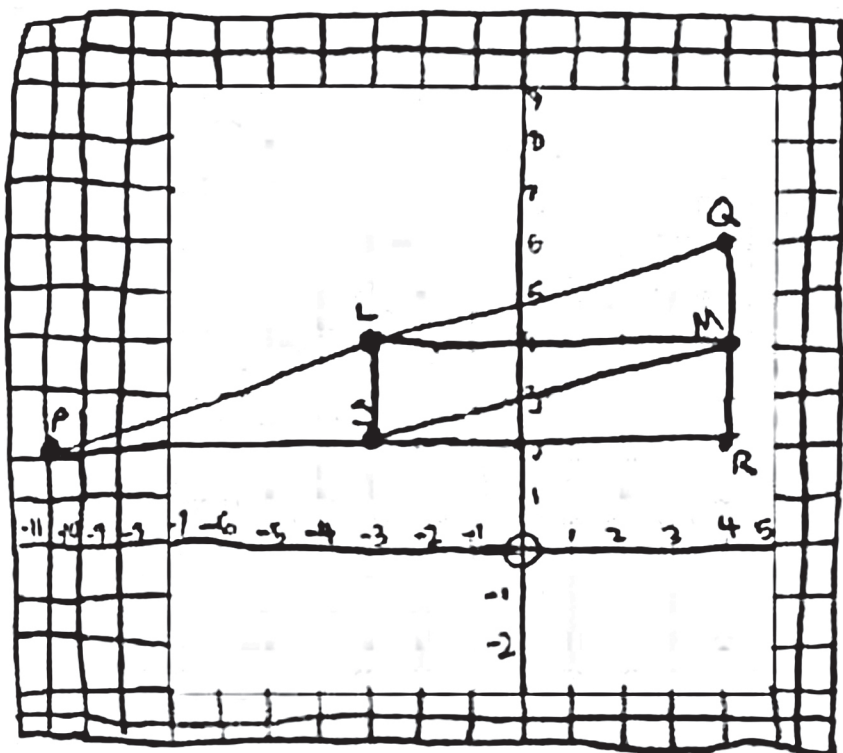
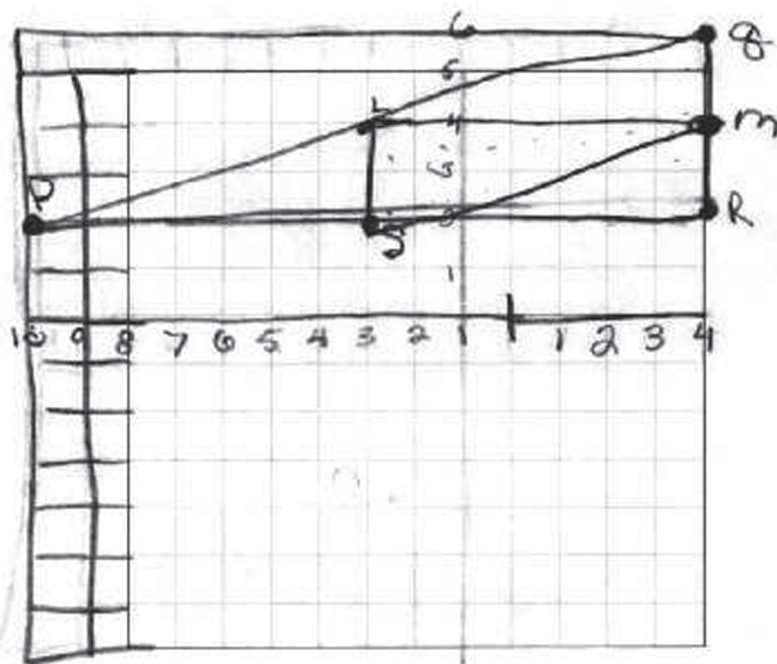d. area is 7 I found this by counting the boxes and adding the lines together.

a. (-3,4)

d - the area would be 11, becuose all you have to do is count all the squares inside the triangle.
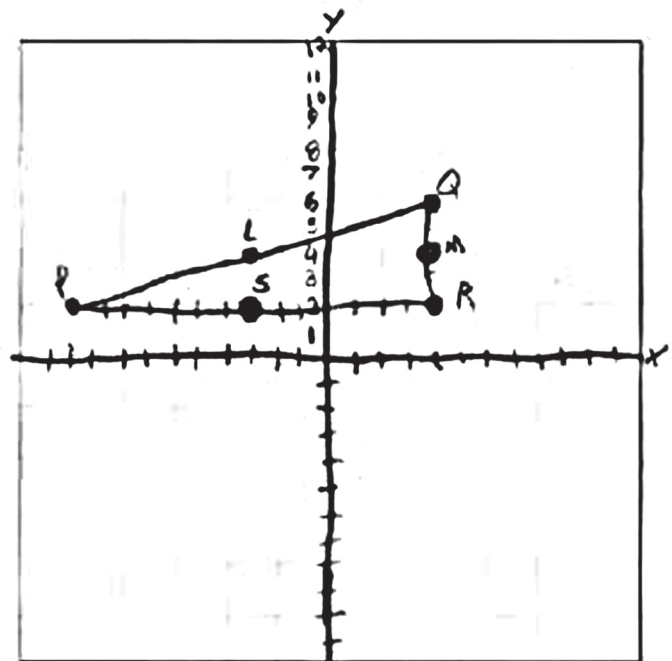
A. $(-3, 4)$

~~B.~~

D. The area is 28. I got this

Area $= \frac{1}{2} b \times h$

14×4

$\frac{1}{2} 0 = 14$ is 7.

$7 \times 4 = 28$

a) $(-3, 4)$

d) 28 units²: First I multiplied the base by the height and got 56 Then I multiplied 56 by ½, and got my answer 28 units².

$$\frac{14}{56}$$ with 4

$$\frac{56}{1} \cdot \frac{1}{2}$$

$$2\overline{)56} \quad \boxed{28}$$
$$\underline{4}$$
$$16$$

A. -3, 2
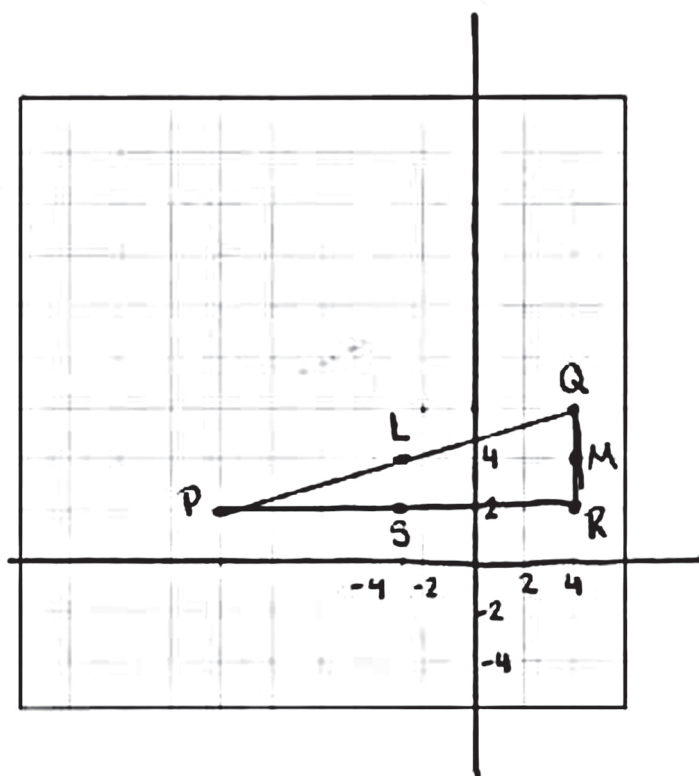
D. It is the same shape as triangle PQR but it is backwards and a different size
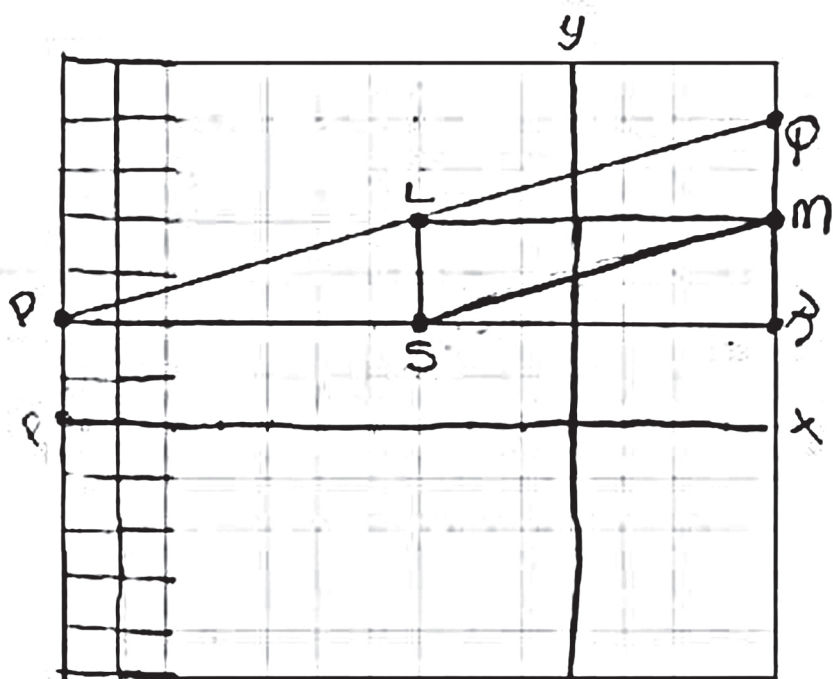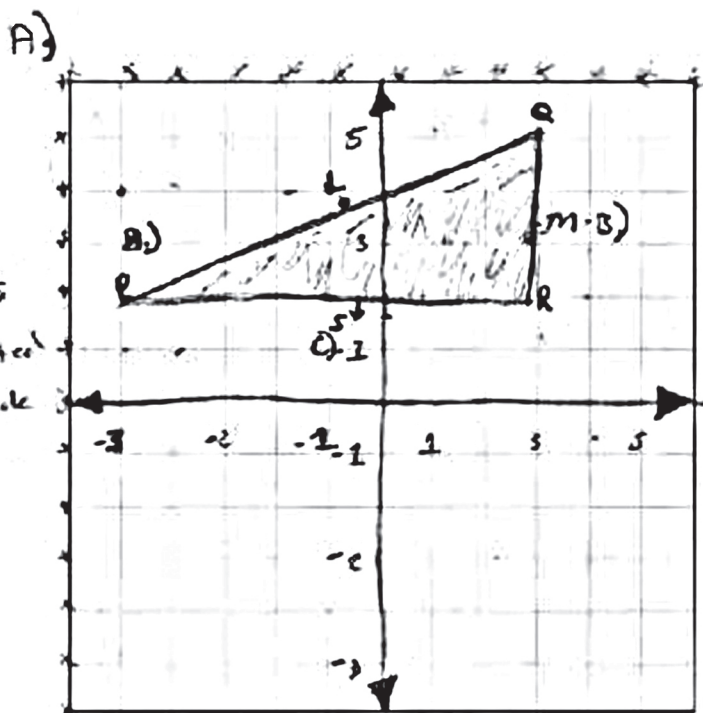
a.) (-3,2)
b.) on grid
c.) on grid
d.) (-3,2)
  (4,4)
  (-2,2)

7.) you add them all (the points on the Grid LMS), and you get 7.

a. b. c

Example of Score Point 0

A)
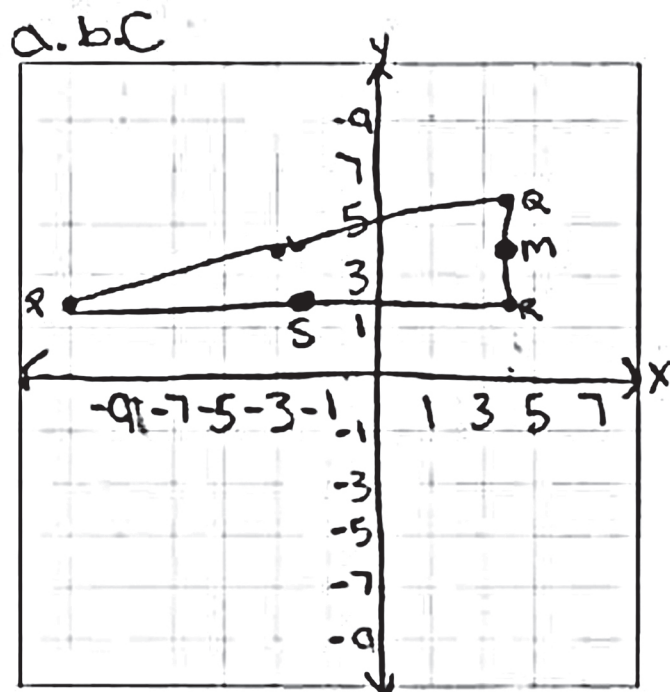
d.) The area of LMS
is 12 because I counted
all of the boxes inside
of the triangle.

Science Directions

This Science test contains three test sessions. Mark or write your answers in the Answer Booklet. Use a pencil to mark or write your answers.

This test includes two types of questions: multiple-choice and constructed-response questions.

For the multiple-choice questions, you will be given four answer choices—A, B, C, and D. You are to choose the correct answer from the four choices. Each question has only one answer. After you have chosen the correct answer to a question, find the question number in your Answer Booklet and completely fill in the circle for the answer you chose. Be sure the question number in the Answer Booklet matches the question number in the Test Booklet. The example below shows how to completely fill in the circle.

CORRECT MARK	INCORRECT MARKS
●	○ ⊙ ◓ ⊘

If you decide to change your answer to a question, erase the wrong mark completely before filling in the circle of the new answer. Be sure you have only one answer marked for each question. **If two circles are bubbled in for the same question, that question will be scored as incorrect.**

If you are having difficulty answering a question, skip the question and come back to it later. Make sure you skip the circle for the question in your Answer Booklet.

For the other types of questions in the Test Booklet, you will be asked to write your answers in the box provided. Read the question carefully. If a question asks you to explain your answer or to show your work, be sure to do so.

You may make notes or use highlighters in your Test Booklet, but you must bubble or write your final answers in your Answer Booklet. **Do not make any stray or unnecessary marks in your Answer Booklet.**

Let's work through a sample question together to be sure you understand the directions.

Sample Question

1. What is the state animal of Montana?

   A. elephant
   B. grizzly bear
   C. zebra
   D. giraffe

Science

1. A student uses a piece of metal to pick up a metal paper clip. Then the student uses the same piece of metal to complete a circuit, causing a buzzer to ring. Which two properties of the metal are demonstrated in this example?

   A. luster and density

   B. solubility and melting point

   C. heat conductivity and boiling point

   D. magnetism and electrical conductivity

2. The diagram below shows a group of cells seen under a microscope. The arrangement of the cells is similar to that of the bricks in a brick wall.
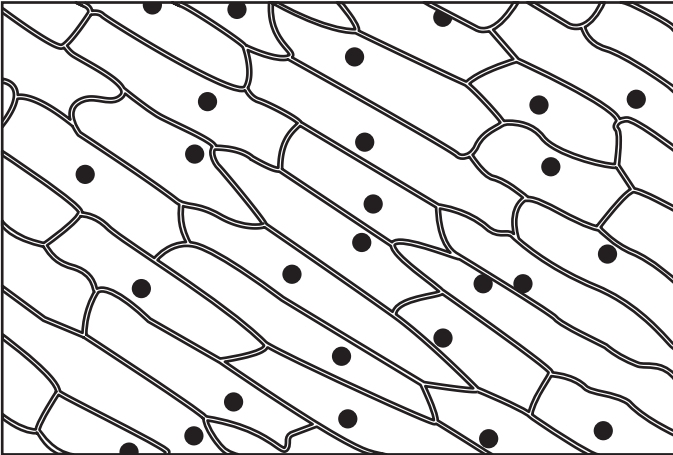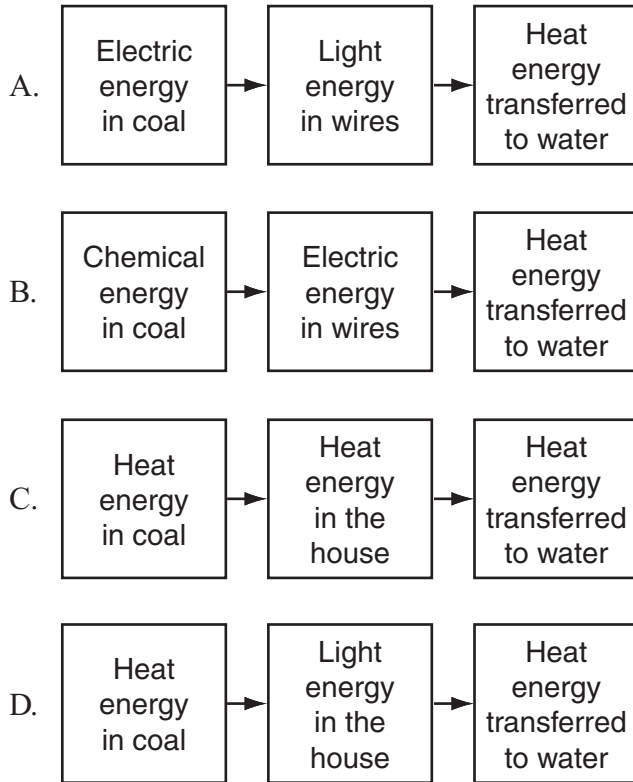

   Which type of cell was **most likely** observed under the microscope?

   A. animal

   B. bacteria

   C. plant

   D. virus

3. There are two days of the year when the Northern Hemisphere experiences equal hours of daylight and darkness. These days occur at the start of which seasons?

   A. spring and fall

   B. spring and summer

   C. summer and winter

   D. winter and fall

4. Military scientists invented a recording device that translates languages. Some Montana Indian people are using the device to record native languages. How will the use of this device **most likely** affect Montana Indians?

   A. It will limit communication between tribes.

   B. It will allow tribes to maintain their cultures.

   C. It will help children better understand English.

   D. It will prevent the development of new native languages.

5. A student lives in a town that gets most of its energy from a coal-fired power plant. She has a fish tank with an electric water heater. Which diagram shows the energy transformations that take place from the coal-fired power plant to the heating of the water in the student's fish tank?

A. | Electric energy in coal | → | Light energy in wires | → | Heat energy transferred to water |

B. | Chemical energy in coal | → | Electric energy in wires | → | Heat energy transferred to water |

C. | Heat energy in coal | → | Heat energy in the house | → | Heat energy transferred to water |

D. | Heat energy in coal | → | Light energy in the house | → | Heat energy transferred to water |

6. Which organisms in a food web are likely to have the most stable population?

A. flying organisms such as owls and hawks

B. organisms with a variety of food sources

C. the largest organisms because they are the most successful predators

D. organisms that eat only plants because plants constantly photosynthesize

7. The diagram below is a model of a predator-prey cycle.

Cycles in Predator and Prey Populations


Key
--- Predator
— Prey
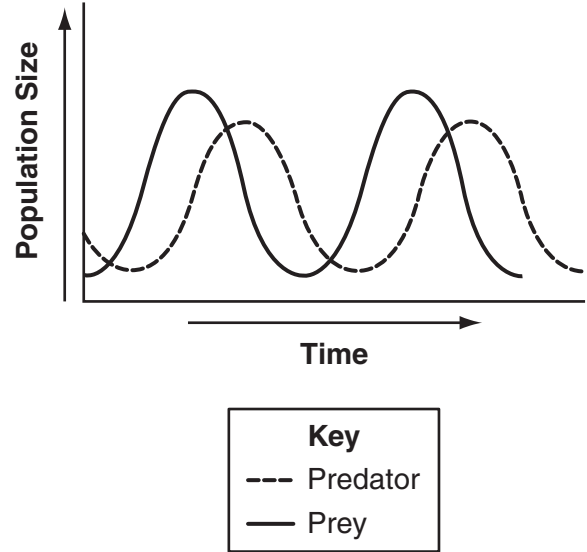
What does the diagram show about the relationship between populations of predators and prey?

A. The populations change each year based on the seasons.

B. The population of predators changes because a new prey is introduced.

C. The changes in the predator population follow the changes in the prey population.

D. The changes in the prey population are caused by a new predator in the food web.

8. Russell Stands-Over-Bull, a Crow Indian, is a sedimentologist. He studies how rocks are formed and the matter that makes the rocks. How is a job like his **most** important to our understanding of Earth?

A. We learn more about Earth's water cycle.

B. We learn the ways Earth's crust has changed.

C. We understand how energy from the Sun changes Earth.

D. We can find new ways to explore space rocks near Earth.

9. A student designs an experiment to test how fertilizer affects plant growth. He uses the same type of plant but changes the amount of fertilizer each plant receives. What should the student use as the control in this experiment?

A. a plant that receives only a small amount of fertilizer

B. a plant that receives no fertilizer

C. a plant that receives a large amount of fertilizer

D. a different type of plant that receives some fertilizer

10. Which list shows the correct order of processes that occur as a rock changes from igneous to sedimentary?

A. cementation → melting → cooling

B. erosion → deposition → cementation

C. melting → cooling → deposition

D. increased pressure → cooling → erosion

11. Which feature is **most** useful in classifying and identifying species of birds?

A. food

B. habitat

C. life span

D. structure

12. What determines the color of a pea plant's flower?

A. how much sunlight the plant receives

B. the combination of genes in the plant's cells

C. the type of soil in which the plant grows

D. how early in the day the flowers open

13. An oceanic plate has been moving over a hot spot for millions of years. What features form as a result of this motion?

    A. Volcanoes form as lava erupts through the oceanic plate.

    B. Valleys form as the hot spot drags the oceanic plate down.

    C. Mountains form as the oceanic plate cools over the hot spot.

    D. Underground caves form as lava slowly drips beneath the oceanic plate.

14. A study about the safety of a new medication for diabetes is found on the Internet. Which statement presents the **best** evidence that the results of the study might be questionable?

    A. The funding for the study was provided by the federal government.

    B. The study was conducted by scientists at a respected university in another country.

    C. The number of people who participated in the study is small compared with the number who participate in most other studies.

    D. The study used English units of measure instead of metric units.

15. What is the role of producers in an ecosystem?

    A. to change sunlight into carbon dioxide

    B. to transfer energy from animals to plants

    C. to break down the bodies of dead plants and animals

    D. to change sunlight into usable chemical energy

16. Microbiologists study microscopic forms of life such as bacteria. Which question would a microbiologist **best** answer by doing a scientific experiment?

    A. Do temperature changes affect the rate of cell division in bacteria?

    B. Will all disease-causing bacteria be destroyed by antibiotics?

    C. How many species of bacteria are capable of photosynthesis?

    D. For how many years have bacteria been present on Earth?

17. A student is using the graduated cylinder shown below to measure the volume of a small irregular-shaped rock.

mL
45
40
35
30
25
20
15
10
5
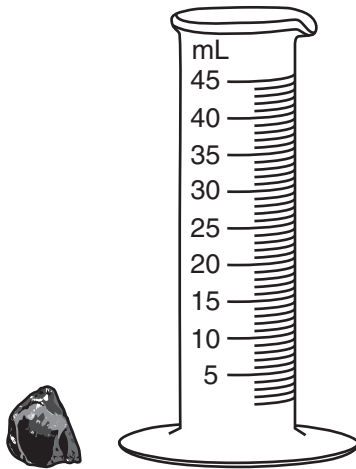
What else does the student need to measure the volume of the rock?

A. a balance
B. gas
C. a ruler
D. water

18. **All** living things share which important feature?

A. They have a brain.
B. They are made of cells.
C. They produce their own food.
D. They move across Earth's surface.

19. What is the relationship among energy, photosynthesis, and respiration?

A. Photosynthesis stores energy, and respiration releases energy.
B. Photosynthesis releases energy, and respiration stores energy.
C. Both photosynthesis and respiration release energy.
D. Both photosynthesis and respiration store energy.

20. When North America is tilted directly toward the Sun, which season is it in Australia?

A. fall
B. spring
C. summer
D. winter

21. A Punnett square is used to show the probability that the offspring of two parents will show a certain trait. For example, the Punnett square below shows that all of the offspring will be Aa.

Aa	Aa
Aa	Aa

Which gene pairs represent the parents of the offspring?

A. AA and aa
B. AA and Aa
C. Aa and aa
D. Aa and Aa

22. Which method describes the **most** appropriate way to report scientific results?

A. including alternative explanations
B. making the data fit the hypothesis
C. providing only one explanation that matches the results
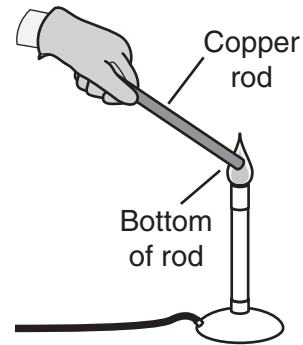D. sharing results that fit the hypothesis and ignoring data that does not

23. The diagram below shows the water cycle.
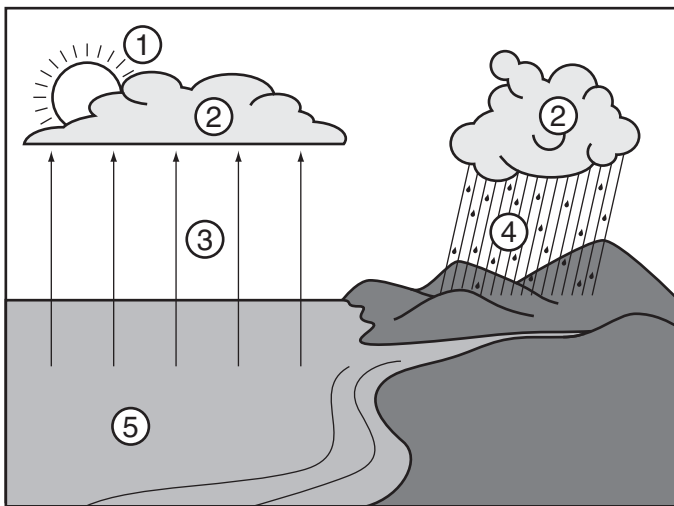
What process does number 4 represent?

A. condensation
B. evaporation
C. precipitation
D. runoff

24. The picture below shows one end of a copper rod being held in a flame.

How will the other end of the copper rod be affected by the heat from the flame?

A. It remains cool because it is exposed to air.
B. It remains cool because heat radiates away from the rod.
C. It becomes warm because heat is conducted through the rod.
D. It becomes warm because heat rises from the flame through the air.

25. A virus may be killing bees in America. If bees disappear, what will happen to plants that rely on bees for pollination?

A. Some plants will produce seeds without blooming.
B. Some plants will not produce nectar and flowers.
C. Some plants will not produce fruit and fertilized seeds.
D. Some plants will quickly evolve new methods of reproduction.

26. The motion of a car is graphed below.

Motion of a Car
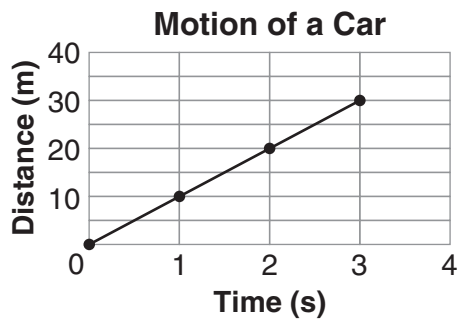
Which statement **best** describes the motion of this car?

A. The car's speed is the same at each second.

B. The car's speed is decreasing at each second.

C. The car reaches its maximum speed very quickly.

D. The car is speeding up because it started at distance zero.

27. Which evidence **best** supports the idea that a region was once covered by a warm, shallow ocean?

A. a thick layer of mud

B. a thick layer of sandstone

C. fossil fern leaves in layers of shale

D. fossil clam shells in layers of limestone

28. The planets in the solar system consist of two groups: the inner planets (Mercury, Venus, Earth, Mars) and the outer planets (Jupiter, Saturn, Uranus, Neptune). Compare the inner planets to the outer planets based on **each** of the following characteristics:

- length of year
- structure
- force of gravity
- size

Scoring Guide

Score	Description
4	Response demonstrates a thorough understanding of the differences between inner planets and outer planets in terms of movement in relation to the Sun, structures, forces of gravity, and sizes. Response has no errors or omissions.
3	Response demonstrates a general understanding of the differences between inner planets and outer planets in terms of movement in relation to the Sun, structures, forces of gravity, and sizes. Response has an error or omission.
2	Response demonstrates a limited understanding of the differences between inner planets and outer planets in terms of movement in relation to the Sun, structures, forces of gravity, and sizes. Response has errors or omissions.
1	Response demonstrates a minimal understanding of the differences between inner planets and outer planets in terms of movement in relation to the Sun, structures, forces of gravity, and sizes. Response has several errors and omissions.
0	Response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.
Blank	No response.

Scoring Notes

- All inner planets have a shorter year or orbital period than any of the outer planets.
- All inner planets have a rocky/metallic core and their atmospheres are thinner compared to the outer planets. Most of the mass of the inner planets is in their cores. Outer planets may or may not have a rocky or metallic core but most of their mass is in the gaseous atmosphere.
- The sizes of all the inner planets are smaller than the outer planets.
- The force of gravity is less on the inner planets (since they have smaller masses). References to surface gravity are acceptable.
- Note: It is incorrect for students to mention that the force of the Sun's gravity on the outer planets is less compared to the inner planets because the outer planets are farther from the Sun.

Example of Score Point 4

The inner and outer planets of the solar system have a lot of differences. Outer planets have a longer year, because they have a farther distance to move around the sun. The structure of the outer planets is also very different, they tend to be more gaseous. Gravity on the outer planets can be very very strong, Jupiters gravity field especially. Size is also an issue. The outer planets are alot larger than the inner ones. The inner planets mostly have shorter years, and are more solid in structure. Their force of gravity is not nearly as strong as the outer planets, and they are much smaller in size.

Example of Score Point 3

The inner planets are shorter years, alot smaller, less gravity. The larger planets have alot longer years, they are very big, they have alot stronger gravitational pull.

Example of Score Point 2

The inner planets have shorter years, are warmer with more possibilities to support life, have more gravity, and are smaller than the outer planets.

The outer planets have longer years, are colder and cannot support life, have less gravity, and are larger than the inner planets.

Example of Score Point 1

The inner planets have longer years then the outer planets have. The inner planets are mostly more complex with multiple kinds of structures On them. The outer planets usually have higher force of gravity. The Inner planets are much bigger in size then the outer planets.

Example of Score Point 0

Som of the planits are small. And som are larg. Some may have life on them and som may not.

Acknowledgments

measured progress